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★ OCCUPATIONAL ★ HAZARDS

FEBRUARY 1942

There's Profit in PREVENTION

In this ISSUE

HOW SERVEL GUARDS EMPLOYEES' HEALTH
VALUABLE SAFETY MANUAL AVAILABLE
PROTECTING WORKERS IN GRINDING, BUFFING AND POLISHING OPERATIONS
HOW TO CONTROL HAZARDS IN GALVANIZING
VENTILATING SYSTEM DOES OUTSTANDING JOB

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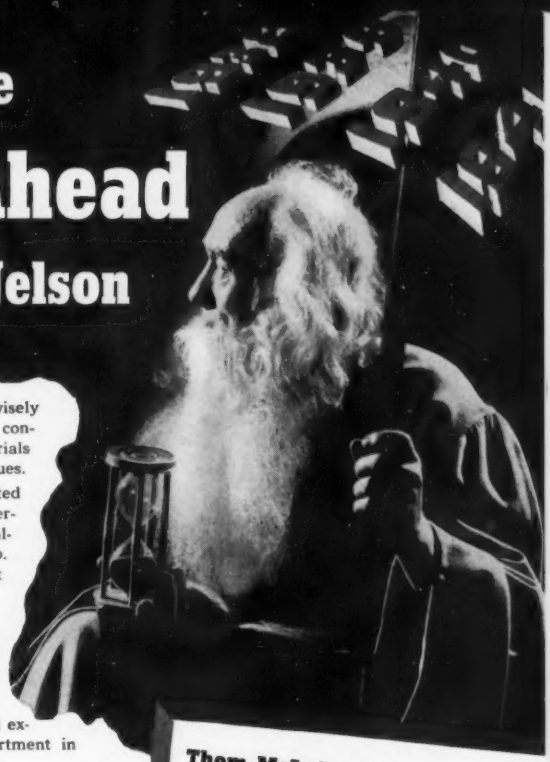

ald Nelson, new war production chief, wisely upon American industry to simplify, to con- rate models, not only to conserve materials also as a means of giving buyers bigger values.

In Thom McAn Safety Shoes we anticipated Nelson by several years. Instead of offer- scores of models, many for highly special- and limited purposes, we CONCENTRATED. centrated on the dozen BASIC models that ome 85% of industry's needs.

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3. Designed upon findings of a patented research device, fitted in our stores by our own trained fitters, Thom McAn Fitmaster Safety Shoes give proper fit, genuine comfort—we guarantee it.

4. Your workmen will continue to wear Thom McAns because they look better, feel better, cost them less than other brands.

Thom McAn Safety Shoes are also sold direct, on special terms, to plants anywhere which are volume purchasers.

Make this store your Safety Shoe Department

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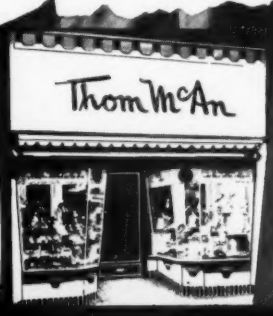

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BRADLEY *washfountains*

8 to 10 persons wash simultaneously at a Bradley.

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That was perhaps one of the shortest and at the same time one of the most dramatic after dinner speeches on record. Only seven words, spoken by a man calmly and without inflection, brought cheers and applause from fifty of his fellow workmen and officers of his company at the banquet.

Here's the Story

The story back of the headline was this:

A few weeks prior to the monthly dinner meeting of the foremen's club, a bearing was being babbitted in the shop of the company which employed this man as foreman. It was a large bearing and all known precautions had been taken in preparation for the pour. The ten inch shaft had been preheated and special care taken to have it dry. The pour was nearly finished when it happened—perhaps a drop of condensation fell into the matrix from the tin roof. This foreman in charge of the job, was standing several feet away when the explosion came. The hot metal reached his face. His nose, mouth, ears and chest were badly burned. A film of the molten compound covered the goggles over his eyes and congealed on the lenses.

That is why his pals cheered when he said: "Gentlemen, I am glad to *see* you."

NEXT MONTH

PLANT PROTECTION NEWS

"Keep them rolling, keep them flying, keep Democracy from dying"
—USED BY PERMISSION OF PEARSON AND ALLEN, WASHINGTON MERRY-GO-ROUND

V ...—

It folds to fit the vest pocket

Defend Your Eyes for Uncle Sam

All-Out war production demands that thousands of workers protect their eyes against the day-to-day hazards of their jobs. That's why an increasing number of operators of buffing, polishing, woodworking and similar machines and men working around spot and flash welding operations are using Jackson's No. 25 Eyeshield illustrated here. They like its feather-weight, its convenience to carry when not in use—the low cost, adequate protection that it provides.

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Contact your dealer. Try this shield, consider its many advantages and you'll willingly pay the small price involved.

QUALITY JACKSON PRODUCTS

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YOU CAN HELP HASTEN VICTORY . . . *Every Day, in Every Way,* S-A-V-E! *

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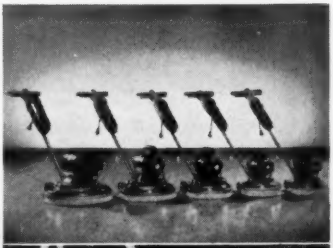
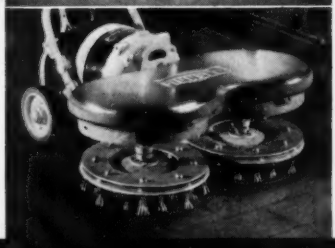
Each of the 49 machines in the complete *Finnell* line is designed to do a *specific* job of floor-maintenance. *One* is exactly right for *your* job—correct in size as well as model, to provide the maximum brush coverage consistent with the area and layout of your floors . . . to do the job thoroughly in the quickest time possible, at lowest cost.





Finnell also offers you the convenience and co-ordinated economy of a single source of supply for *all* your floor-maintenance needs—cleansers, sealers, waxes, and accessories, as well as equipment . . . everything to properly protect your floors and simplify their maintenance.

For free floor survey, demonstration, or literature, phone nearest *Finnell* branch, or write Finnell System, Inc., 3502 East Street, Elkhart, Indiana.

* Let's all *keep on* buying Defense Savings Stamps and Bonds.

FINNELL SYSTEM, INC.

Pioneers and Specialists in FLOOR MAINTENANCE EQUIPMENT

There's Profit in Prevention

OCCUPATIONAL Hazards

FEBRUARY 1942

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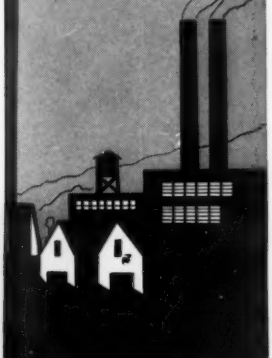
Jack Weiss, Editor



CCA

BY SUBSCRIPTION, one year, $1.00. Single copies, Ten cents.

Undisclosed FACTORS in ACCIDENT PREVENTION

COLONEL THOMAS DOBBINS, M.D., MEDICAL AND SAFETY SAFETY DIRECTOR, SERVEL, INC., EVANSVILLE, IND.

FORMERLY, many industrial leaders, considered shrewd and competent in their routine factory management, purchasing, production, and selling, were singularly blind or indifferent to accident prevention with its hidden financial losses, say nothing of the social responsibility involved, which is really a vital factor in efficient production. Money saved through accident prevention is most gratifying from a humanitarian motive, and will favorably reflect in the total profits as those built up through purchasing, production, and selling.

Modern industrial medicine was first conceived by the awakening of social consciousness by a few visionary industrialists, who were appalled at the startling and ever increasing number of casualties incident to the fabrication of their products, and began to devise ways and means of prevention and alleviation of human suffering.

Like most pioneering, the initial step was far from encouraging, while casualties continued at an ever increasing rate. Just how to inaugurate such a program baffled the minds of the best intentioned. There was no precedent to follow; ways and means had not been developed to any degree of efficiency; statistics had not been gathered and compiled, and they were compelled to grope about like the lost souls of Limbo.

But through the years of gradual process by trial and error, order was brought out of chaos. At first, many employers were deaf to the appeal of those pioneers who had sufficient vision to take the initiative, but as productive methods improved, naturally competition became an ever-increasing factor.

Time would not permit each industry, through its own efforts, to directly fathom all effects that may arise from the use of strange ma-

Dr. Dobbins, well known industrial medical man, brings a fresh, keen slant to industrial employee health. An important contribution to the science of safety management.

terials, new and improved methods of processing requiring the utmost attention to detail; so it was a revelation to note that scientific information had been recorded and collected by research workers and is now available to remote man that he, too, may enjoy and apply to his daily problems the benefits of learning gathered together from centers of technical activity, that present and future generations of technologists may escape the oft repeated elemental experiments and devote the capacities to present needs and new endeavors.

Laboratory facilities are maintained where diagnostic work is done.

Facts and Figures Prevailed

When compensation and occupational disease laws were finally legislated, with increased taxation, employers who had been reluctant to inaugurate a health program began to feel the financial pinch of paying for disabilities and occupational diseases, alleged and real, so that in many cases where humanitarian arguments failed, cold facts and figures closed the sale.

The initial work in industrial health control would be ideal could one but start with the selection of employes, but this is not always feasible, for we are often in the position of instituting health programs in industrial plants that have been acquired and long established, where we find the usual quota of aged and infirm individuals that have been retained for humanitarian reasons and we must bear with them.

Especially is this true where there is no old age retirement plan in vogue, but future selection as to physical and mental requirements should be very exacting. This can be accomplished by thorough physical examination, not with the fondest hope of securing 100 per

(Please turn to page 32)

Allis-Chalmers Makes Safety Manual Available to Industry

By Addressing Individual Requests to Editor, OCCUPATIONAL HAZARDS, 812 Huron Rd., Cleveland, Ohio. You Can Get a Copy of this Outstanding Safety Booklet, Herein Described.

SAFETY became a word with a new meaning at Allis-Chalmers, when the company distributed 14,000 copies of its new illustrated safety manual to as many employees at the West Allis plant.

The safety booklet is a preliminary step in a recently intensified Allis-Chalmers safety program, in step with a similar program advocated throughout industry as vital to the nation's defense production efforts.

Based on safety tips uncovered in a long-term survey of industrial accidents, the booklet is offered to shop employees as a safety guide. According to figures compiled by the company, "more than half of the accidents which occurred in 1940 were due to carelessness, taking chances and the failure to use safety equipment."

Special Instructions

Special instructions for care of the eyes, hands and feet are listed and illustrated. Wide use of standard safety goggles and steel-toe safety shoes is advocated, and the company contributes to the purchase of these. The company also furnishes certain essential safety equipment at no cost to the employees.

Included also is a guide to the company's hospital facilities, where 8 nurses, 6 first-aid men and 8 doctors provide 24-hour-a-day free medical service for all employees. This staff administers all first aid and prescribes the proper follow-up treatment for each case.

To call immediate attention to the safety manual, 4 x 5 foot enlargements of the book form giant pages now on display at the employee entrances.

About 75 newly-erected, glass-enclosed bulletin boards in all of the Allis-Chalmers shops will carry periodic safety messages as the campaign continues. From time to time the company will also supplement the manual on general occupational safety with specific tips on individual job hazards such as welders, cranemen, & foundrymen.

Excerpts from Allis-Chalmers Safety Manual. Protective products and safety precautions are stressed.

Standard Protects Workers in Grinding, Buffing, and Polishing Operations

IN 1935 the Board of directors of the American Foundrymen's Association created a new staff section known as the Safety and Hygiene Section of the A.F.A. This section was established for the purpose of compiling uniform, practical information on safety and health for the use of the foundry industry. In listing the various fields of activity for the new section, the board of directors outlined the following objectives:

(*a*) "To assist in the standardization of dust-eliminating equipment and improvement of shop operation conditions in the foundry industry," and

(*b*) "To promote standards for dust elimination and control equipment in cooperation with agencies of manufacturers of such equipment."

To carry out this program an Industrial Hygiene Codes Committee was organized which, operating through the Safety and Hygiene Section of the A.F.A., instituted work on a number of codes in accordance with the objectives set up by the board of directors.

One of these codes, completed by the committee and approved by the board of directors of the A.F.A. in 1936, was the Tentative Code of Recommended Practices for Grinding, Polishing, and Buffing Equipment Sanitation.

At about the time this work was started, the American Standards Association committee on the Safety Code for Exhaust Systems decided to prepare standards covering grinding, buffing, and polishing, for use in all industries where such

Examples of skilfully engineered hood and piping designs.
Photographs courtesy International Harvester and Norton Companies.

equipment was in operation. The A.S.A. committee agreed to a suggestion that the code being prepared by the American Foundrymen's Association would be submitted for approval as an American Standard.

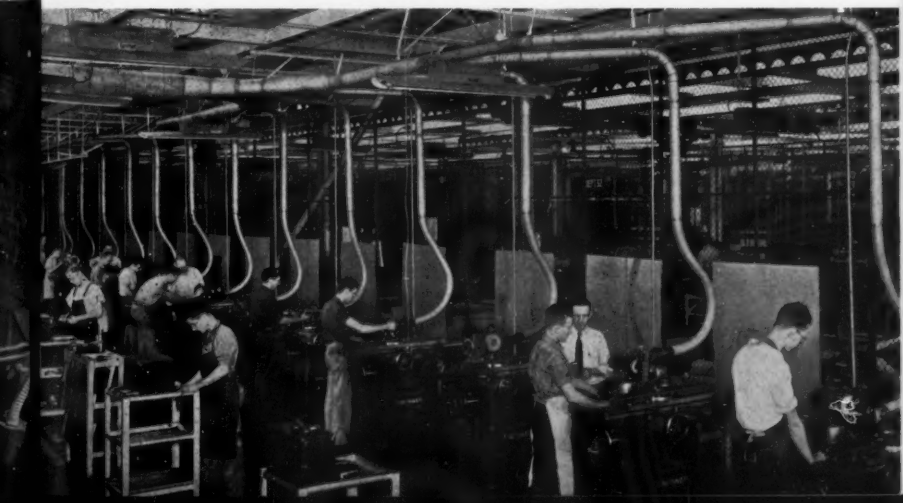
Receives Wide Circulation

Following completion of the document, the A.F.A. not only distributed copies to the members of the foundry industry but also widely circulated the code among interested organizations and individuals throughout the United States. It was also brought to the attention of the regulatory bodies of several states, which adopted it as the basis of their own requirements.

The favorable reception given the code by these organizations caused the American Foundrymen's Association to submit it to the American Standards Association for approval as an American Standard. This action was recently completed. The American Foundrymen's Association has thus made a contribution to the group of standards generally available for the use of American industry.

It had been the intention of the American Foundrymen's Association, when submitting its code to the A.S.A., that the scope be made applicable to all industries using grinding, buffing, and polishing equipment. Consideration of the code by the members of the exhaust systems committee, and later by the Safety Code Correlating Committee, indicated the desirability of limiting the scope to the grinding, buffing, and polishing of ferrous and non-ferrous metals.

The committees considered the



fact that the type of equipment covered by the code is being used today to grind, polish, and buff various kinds of substances besides metals, about which little is known as to possible toxic properties. It was therefore believed unwise to indicate that the engineering principles set forth in the standard were adequate for all types of materials.

Hoods Required

The standard prescribes that in any industry where grinding, polishing, buffing, scratch buffing, or abrasive cutting-off wheels, grinding and polishing straps, or belts are used for the purpose of grinding, polishing, or buffing ferrous and non-ferrous metals, there shall be provided hoods connected to exhaust systems which will remove toxic or deleterious substances. It further prescribes that such exhaust systems shall be operated continuously during any of the operations enumerated, and that the exhaust systems shall be provided with dust arresters, collectors, or precipitators to collect the dust or dirt before the air or gases from such exhaust systems are discharged out of doors.

A number of exceptions to the general requirements are given; as, for instance, if an industry employs grinding machines upon which a liquid is used at the area of grinding contact to prevent the escape of dust or particles given off by the operations. An exception is provided where intricate and precision grinding of parts is carried on, or where the grinding pencils, discs, or wheels are not over one inch in outside diameter. Portable polishers and grinders are also excepted. These are a few of the several exceptions specified by the committee which prepared the standard, in order that there would be no misunderstanding as to its applicability in such special cases.

This workman is well protected. All harmful dusts are removed by well-designed hood and exhaust equipment.

Detailed Drawings

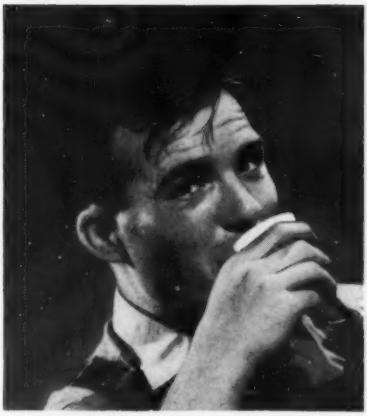
All of the specifications for exhaust systems which have been prepared by numerous organizations in recent years have included detailed construction requirements for hoods and branch pipes. This new American Standard is no exception to this rule, and it may therefore be said that in many ways this standard on a particular subject presents some standard construction requirements which will be of value to other fields of activity.

Methods of testing the exhaust systems, and of collecting the dust and dirt carried by such systems, are prescribed.

In discussing the design of hoods the standard calls attention to the American Standard Safety Code for the Use, Care and Protection of Abrasive Wheels and also reproduces a number of illustrations from that standard which show the maximum openings in hoods for wheel exposures. In this case the requirements of the two codes have been co-ordinated to present uniform specifications as far as the use of grinding wheels is concerned.

Special requirements for wing frame grinders, portable grinders, polishing and buffing hoods, cradle grinding and polishing operations, horizontal single spindle disc grinders, horizontal double spindle disc grinders, vertical spindle disc grinders, and grinding and polishing straps and belts are given. Methods for special requirements are illustrated.

The Standard may be ordered from the American Standards Assoc., 29 West 39th St., New York.



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Divisions of United States Envelope Company

Ajax Mobile Water Service takes water to employees at their machines; saves time, promotes health, improves morale. Send for information. . . . Any drinking fountain can easily be equipped so that AJAX cups can be used.

AJAX CUPS

New Ventilating System Speeds up Boring of Continental Divide Tunnel

SIX feet per day have been added to the push in the east portal of the thirteen-mile-long Continental Divide tunnel, being driven by the S. S. Magoffin Company at Estes Park, Colorado, since the recent installation of what is believed to be the most effective method of ventilation ever devised.

The ventilating system consists of heavy-duty blowers powered by General Electric 2200-volt, 100-hp motors, connected to the blowers by means of V belts. The motors are handled by G-E full-voltage, automatic, reversing control. As the work progresses, the blowers are being installed every 9000 feet along the tunnel.

The installation of this ventilating system has cut twenty minutes from the time needed for each drilling cycle. So effective is the system that the men working in the heading can now return to their posts immediately after shots are fired, instead of waiting for the smoke to clear.

Can Be Regulated

In addition to removing smoke from the bore, the ventilating system can be regulated to overcome the fog usually prevalent in a tunnel because of the difference in the temperature of the air at the portal of the tunnel and at the heading.

After holes have been drilled by the crew in preparation for blasting, the fans are shut down while powder is placed in the holes. The charge is then fired electrically. Immediately after the shot is fired, the operator in the compressor house at the portal of the tunnel —from where the blowers are controlled—is notified by telephone and the fans are started to exhaust the bad air from the tunnel.

Twenty seconds after the blower in the heading of the tunnel starts, the next blower starts, and so on down the tunnel. This allows sufficient time for the air to reach each blower, thereby eliminating the possibility of a vacuum being created in the duct with a resulting inrush of air which might damage the blower or duct.

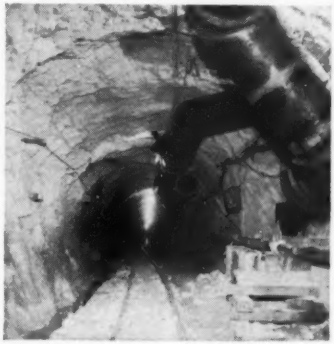
The fans exhaust for approximately 20 minutes, sucking all the powder smoke from the heading, and are then reversed to blow fresh air into the tunnel. After the "reverse" push-button is pressed, the motor in the portal of the tunnel delays one minute and then starts up in the opposite direction. This allows sufficient time for the motor to come to a rest before changing direction; preventing plugging.

Twenty seconds later, the second blower picks up; the remaining motors start at twenty-second intervals. The fans blow fresh air ino the tunnel for about thirty minutes and are then again reversed. Exhausting is continued until the

heading crew is again ready to shoot, when the fans are shut off and the procedure repeated. This system requires only one pipe to supply fresh air and to exhaust bad air, and is much more economical than a double blower system.

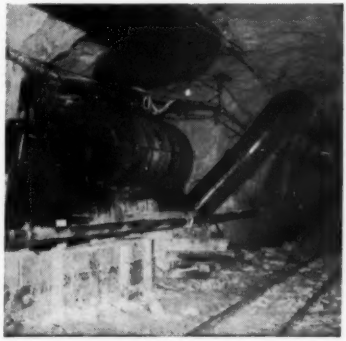
Blowing and exhausting are timed to conform with outside temperature, to avoid fog collection in the tunnel. In this way, the heading of the tunnel as well as its complete length is always free from smoke and fog.

When completed, the fifty-million-dollar Continental Divide Tunnel will connect Estes Park and Grand Lake, Colorado, to bring water from the western slope of the Continental Divide to the eastern side, where it will be used for irrigation. In addition, immense quantities of power will be developed by the installation of turbo-generator units at strategic points. The project is directed by the U. S. Bureau of Reclamation.



Above: View of tunnel shows exceptionally clear atmosphere.

Below: Blower installed in a niche in tunnel wall.



"An Ounce of Prevention Is Worth a Pound of Cure"
BENJ. FRANKLIN

Right you are B. F.—and that is exactly what the DUPOR No. 1 Miniature Nose Mask weighs! Keeps paint spray (free from harmful gases) out of respiratory system—keeps out nuisance dusts—stands guard over lungs every minute of the day! Pounds and pounds of cure will never correct that which a convenient ounce of DUPOR can so easily prevent. Write for catalog!

DUPOR No. 1 Miniature nose mask — weighs less than 1 ounce — provides 9 sq. in. filtration—sells $12 dozen — sample $1 postpaid.

H. S. COVER
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36 Chippewa St., South Bend, Ind.

How to control hazards in hot-dip galvanizing industry

Intelligent use of basic health and safety principles helps to reduce exposures in hot-dip galvanizing

By WALLACE G. IMHOFF, President, Wallace G. Imhoff Co., Vineland, New Jersey

THE hot-dip galvanizing industry, like all other industries has tried to make, and to keep its plants and shops as safe as possible from occupational hazards. If accidents and sickness are to be avoided, both labor and management must know and fully understand the conditions that cause accidents, or that are a menace to the health of the men.

The past ten years have seen a remarkable improvement in the galvanizing industry in eliminating many deplorable conditions which existed mainly because of two things, namely, a lack of adequate equipment to solve their problem, and a lack of technical knowledge of the causes that were creating the trouble. Both equipment and technical knowledge are available at the present time, so that most of these previous hazards can be eliminated. Just ordinary common sense and good judgment, and always being careful are the three most important factors in eliminating occupational hazards in any industry.

Hot-Dip Galvanizing Process

A very brief outline of the various operations in hot-dip galvanizing follows. The base metal is usually steel or iron. In some cases it is fabricated, for example, water pails, wash tubs, etc.; range boilers and tanks, hardware for telegraph poles, etc. First the oil and grease is removed by putting the articles in a hot commercial cleaning bath, and then rinsing in a clean water rinse. In making the steel a scale or iron oxide forms on the surface; also many iron and steel articles get rusty, and before a zinc coating can be applied, all this scale, rust, and foreign material of every kind must be removed, and the bare, clean, iron surface exposed.

Different kinds of scales take different kinds of acids, hence, sulphuric acid, muriatic acid, nitric acid, and hydrofluoric acids are all used to pickle, or remove the scale from the surface. After pickling and removing the scale and iron oxides in acid, the surface must be rinsed, and then fluxed. A flux is a material that prepares the surface to take the molten zinc coating; it changes all the insoluble oxides which adhere to the surface, to soluble chlorides which leave the surface, and thus give perfect bonding conditions between the base metal and the molten coating metal.

This ends the cleaning, pickling,

Hot dip galvanizing very large tanks at one of the world's largest galvanizing plants. *(Courtesy Joseph P. Cattie & Bros.)*

and fluxing operations; the next operation is to put the article down into the molten zinc bath to receive its zinc coating. In some fields of galvanizing a molten slag flux of sal-ammoniac, or zinc-ammonium chloride is put on top of the molten zinc to stop the spattering, and prepare the surface for the alloying action of the zinc. It dries, fluxes, and heats the steel. The temperature of the bath, and the time that article stays in the molten zinc depend upon many different things, such as the gage, or the thickness of the base metal, the kind of an article, such as a water tank, or a pipe.

After the article has been in the molten zinc long enough to be properly coated it is slowly drawn out, the molten zinc draining back into the pot. Some work, such as angles, bolts and nuts, etc. are water quenched. Other articles, such as water pails, tubs, etc., are cooled in the air, and develop what is known as a "spangle," or a beautiful crystallization effect on the surface. This then is essentially the outline of the process of hot-dip galvanizing. It can be seen at once that there are many ways that carelessness may result in an accident, or that handling the materials might be the cause of burns.

Where To Be Careful

There are a few very important things that always must be kept in mind in a hot-dip galvanizing plant. The first and most impor-

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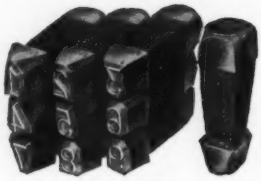

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tant is how to put the articles in the molten zinc. This involves knowing two things, namely, whether the article itself is made right to galvanize, and second, the actual submersion of the article into the bath. Explosions rarely happen, but they have happened, and so it is necessary to know and understand why they happen. Expanding air, trapped steam and trapped gases, will all cause explosions, so that cold steel should never be quickly dropped into the molten zinc bath. Even a cold steel iron rod has pores in it, and if this cold rod is quickly thrust into the molten zinc the cold air in the pores expands quickly, blowing or spattering the molten zinc every where. All steel should be heated before it goes into the zinc, and this can be done with the hot flux dip, a hot muriatic acid dip, or carrying a heavy slag flux on top of the galvanizing bath.

Particular care must be taken when galvanizing large tanks such as is shown in **Figure 1.** To properly galvanize an article of this kind requires much skill, and many years of contact with practical galvanizing conditions. It is a general principle of safety in galvanizing, that all tanks must have two openings, one to let the molten zinc flow in, and the other to permit the escape of steam, gases, and hot air out of the tank. One opening, especially if it is small, does not give sufficient chance for the hot gases to escape while the zinc is coming in through the hole at the same time. Often the gases are trapped, compressed, and even if an explosion does not result, the instant the hole is turned up, the confined pressure may blow molten zinc and flux all over the operator. Figure 2 shows the method of galvanizing an ordinary wash tub.

Actual Accidents

It has been said that accidents in galvanizing plants are rare; that is serious accidents. There are the usual small minor hurts that occur in all plants generally from carelessness, or lack of proper precaution. It is of interest to explain how really serious accidents can

happen, and this is best done by telling about ones that have happened. In one plant a request had been made to galvanize a drum only on the one side, the outside. Even in pickling, the solution is hot enough to cause an explosion from expanded air and gases inside, so the chance was taken, the bung was screwed in tight, and the article pickled on the outside only. The pickling bath is generally carried at 150 to 180 degrees F., and it evidently was not hot enough to cause enough pressure to explode the drum. The next operation was galvanizing, and since the drum was closed it tended to float on the molten zinc. In order to sink it under the metal a very large timber was used as a lever to push it under. The heat of the galvanizing bath was high enough to generate enough pressure to break the drum, and the result was that some of the men were very seriously burned by the molten zinc thrown out of the pot on them.

Bad Burn

Another example badly burned a number of men trying to galvanize an iron coil. Steam and moisture in the bends of the coil were trapped, and the force of the explosion threw molten zinc all over the operators. In still another plant the production of sprinkling cans was set too fast by the management against the protests of the operators. After a few days operation the slag flux on the bath became trapped in one of the sprinklers, and as it turned over and released the pressure, molten slag flux was blown all over the operator. Such accidents as these are not common, and as has been

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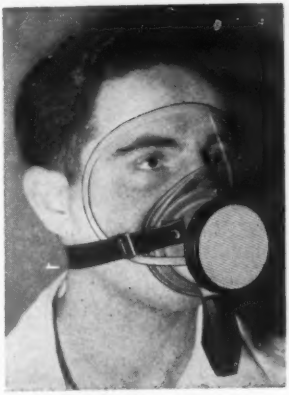

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brought out, are due to carelessness of the management, or the operators themselves. It therefore must be repeated again, that no vessel should be hot-dip galvanized that does not have an intake opening, and another opening to allow the gases and steam inside to escape.

Accidents of many kinds may happen in handling pickling acids. For example, in one plant the operator was pouring acid from a carboy and after tilting it, he let it go quickly to the normal position. As it straightened out, the acid splashed in the inside of the carboy, and a little came out of the neck of the bottle and into his eye. As it was concentrated sulphuric acid his eye was badly burned before anything could be done for it. As a precaution for just this sort of a burn which may be on the face, the hands, or any exposed part, it is advisable to always have a box of ordinary baking soda handy to rub on the acid and neutralize it as quickly as possible until first aid can be given or it can be treated at the company hospital.

Care in Handling Pickling Acids

Another case of severe acid burns was due to the operator's own carelessness. He had pickled iron and steel articles many years with sulphuric and muriatic acids and came to hold them as more or less harmless because he knew how to handle them. Then a time came to use hydrofluoric acid, and he was cautioned about the very serious nature of the burns from this acid. He had the high rubber gloves but he was just as careless with this acid as he was with the others. Some small amounts of the acid "slopped" over the tops of his gloves and down into the fingers. After an hour or so he began to complain about his fingers burning badly, and he said he was going up to the first aid station. How severe he was burned may be realized when it took six months to heal his fingers, and every finger nail was burned off, and the ends of all his fingers were terribly burned. Hydrofluoric acid attacks the finger nails and flesh and burns badly

over long periods of time. Extreme care and caution must be used when handling this acid; the burns from hydrofluoric acid are most severe and painful.

Nitric acid is not very often used in pickling for galvanizing. However it is used in hot-dip tinning for cleaning copper, and it is also used for pickling brass. The fumes from nitric acid are heavy brown poisonous nitrous oxide fumes and should be carried off under a hood. Continued working in an atmosphere of these fumes will make the operator very sick. The best conditions for this acid pickling is in an acid-proof brick tank with hoods to carry off the brown poisonous fumes.

Pickle Fumes

The best cure for pickle fumes is to set up conditions that will not make fumes, and this statement then gives rise to the one, that in plants where pickling fumes are bad, pickling conditions are not right. The remedy lies in setting up the correct pickling equipment. Bad pickle fumes indicate that the pickle capacity is too small for the production requirements. Acid strength and bath temperature control pickling speed, and they also control fume conditions.

As a concrete example again, in a galvanizing plant the fume conditions were abominable. There were only two pickling tanks, and these were being operated at the boiling temperature, and the acid strength was 12 per cent. It was almost impossible to even go into the pickle room on a cold frosty morning. The production was exactly the same as that in another plant where there was almost no fumes at all, doing exactly the same articles, and the same production. The reason for no fumes in this plant was because there were eleven large pickle tanks; the acid temperature was only 120 degrees F., and the acid strength only 1.50 per cent. The plant having the two tanks had to replace the rods, and make extensive repairs on the tanks every three to six months; the plant having the eleven tanks had had them in operation for 15 to 17 years each, and had had to make only minor repairs on them.

(Please turn to page 28)

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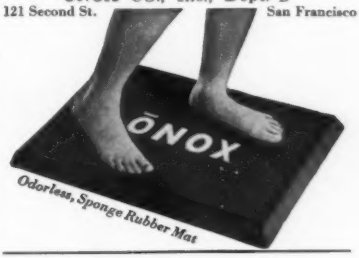
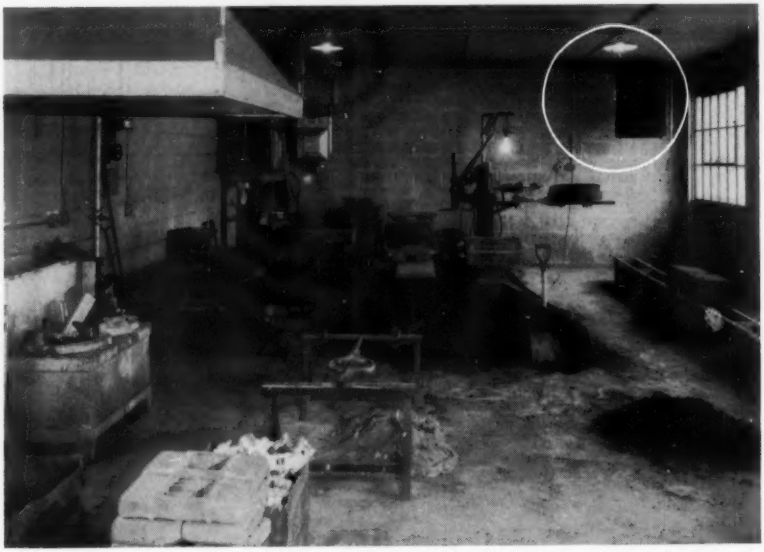


Turn on the Heat

PROPER heating facilities are a prime consideration for plant management. Illustrated is a particularly clean installation that was designed to do a specific job and did it.



Manufacturers of Dowmetal castings for various aircraft applications are R. C. Hitchcock & Sons, Minneapolis, Minnesota. A year ago, with production on the uptrend, R. C. Hitchcock & Sons erected an experimental magnesium foundry. Clean operation and well controlled temperatures were required of the heating units selected for the foundry with the additional consideration that no floor space was available. Gas Unit Heaters have met these demands in a manner which has proved satisfactory to employees and management.

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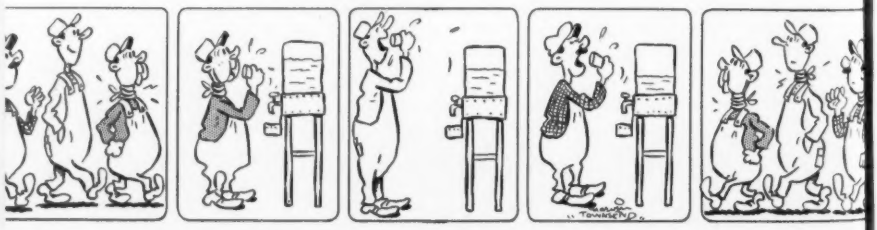

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PUT YOUR FINGER on the side of your foot, near the sole. That's the cuboid bone. Rub it, note its sensitivity to chafing and pressure. That's because it has no protective fleshy cushion.

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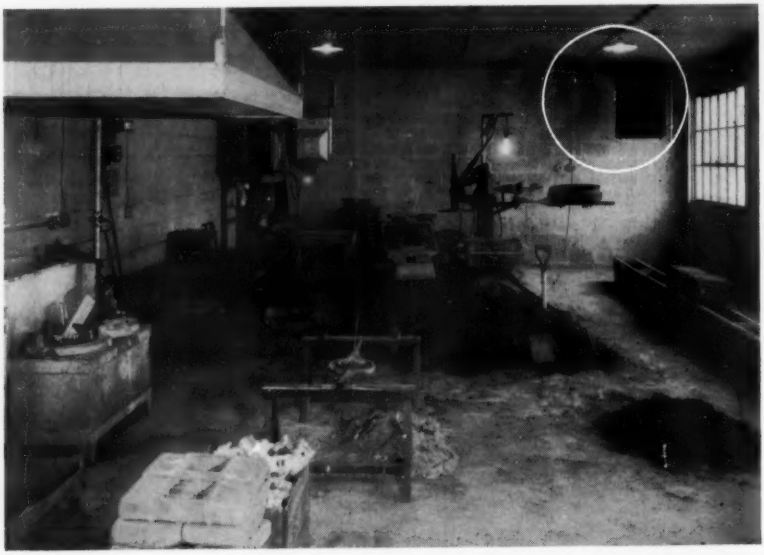

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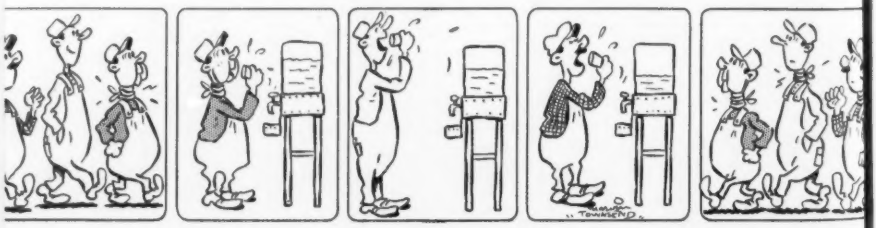

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Right off the Docket

The trend of litigation on workmen's health and accident compensation is reflected in these briefs of the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist.

Death Results from Dislocated Vertebra

The decedent employee was a maintenance man and porter. It was his duty to open the windows and ventilators of his employer's store in the morning and close them at night. The work required about three quarters of an hour both morning and night. He rode to the top floor in an elevator and then walked down, doing his work on each floor as he came to it. He was seen performing his work one day in the regular way. A little later he entered the elevator at the second floor and while descending collapsed. At the hospital he was found to be suffering from a dislocation of the third cervical vertebra with evidence of spinal disturbance.

The death was held to be due to an accident within the employment, and compensable.

Woodham vs. A. Victor & Co. (N.Y.) 30 N.Y. Supp 2nd 928 (Nov.-1941)

Hernia Award Refused

The employee's death was due to pneumonia which developed as the result of an operation for chronic hernia. The claim was made that the hernia was an occupational disease and had been suffered by the employee due to the lifting of various weights in the course of his employment, over a period of years.

The claim for compensation was rejected and an award refused. The Court said that in order to constitute a compensable "occupational disease" the disease must arise out of and in the course of employment, and must not be an ordinary disease of life to which the general public is exposed outside of the employment.

Kniat vs. Industrial Commission (Illinois) 37 N.E. 2nd 810 (Nov.-1941)

Employee Prevented from Bringing Law Action Since He Had Remedy Under Compensation Act

The plaintiff, employee, a steamship janitor, arrived at the pier for work, and was injured while alighting from a taxicab on bulkhead when the taxicab was struck by employer's automobile driven by another employee. The bulkhead which was under the control of the harbor commission, was the only means of reaching the pier that had been assigned to employer and at which the ship was moored.

The plaintiff claimed that since he was on his way to work he was not injured in the course of his employment, and therefore did not come under the Workmen's Compensation Act, and was entitled to sue the employer in an action at law.

The Court held otherwise, deciding the employee came within the provisions of the Compensation Act. Ordinarily, the Court stated, an employee is not entitled to workmen's compensation for an injury sustained in going to or departing from work, but he is entitled to compensation if the em-

ployment creates a special risk, for injuries sustained within the field of that risk, and such a risk may attend the employee as soon as he enters the employer's premises or the necessary means of accesses thereto, even when the latter is not under the employer's control or management. This was such a case.

Freire vs. Matson Navigation Co. (California) 118 Pac. 2nd 809 (Nov.-1941)

Working in a Confined Area Exposed To Sun Causes Heat Prostration

The employee sustained a heat stroke while at work digging a pier footing. The pier footing was about eight by eight feet in area and was being excavated within a larger excavation of about forty by fifty feet that was about ten feet below the surface of the surrounding ground. The employee had been at work about 3½ hours in the afternoon when he was stricken. The evidence showed that it was a clear sunny day, which was unseasonably hot.

An award was granted. The Court held that the employee had suffered a compensable injury that "arose out of and in the course of employment" since he had been exposed to a degree greater than that of other persons in the vicinity.

Zucchi's Case (Mass.) 37 N.E. 2nd 514 (Oct. 1941)

Injury "Arising Out Of And In The Course of Employment" Defined

The requirement of the Workmen's Compensation Act that a personal injury in order to be compensable must "arise out of and in course of employment" does not mean that injury must occur in the usual course of employer's business, but where injury is sustained by employee while doing an act which is not in the usual course of employer's business but which is done at the direction of the employer, employee is presumed to be the employer's "employee" in so doing.

In this case where a town's road superintendent as the result of a conference between the chairman of the board of selectmen of the town and a selectman ordered a general laborer in the highway department of the town, which had neither fire fighting apparatus nor a fire department, to assist in putting out a fire on privately-owned premises, it was held that the injury sustained by the laborer, while thus engaged "arose out of and in the course of his employment" within the Workmen's Compensation Act.

Castagna's Case (Mass.) 38 N.E. 2nd 63 (Nov.-1941)

Vacuum Cleaner Workman Gets Award for Dust Disease

The employee worked for an employer engaged in the business of cleaning and repairing old vacuum cleaners. The employee contracted a dust disease, and it was held by the Industrial Board, and affirmed by the Appellate Division of the New York Supreme Court, that an award should be granted for the resulting disability.

Sturesky vs. Straussman (N.Y.) 30 N.Y. Supp. 2nd 886 (Nov.-1941)

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How to Control Hazards Hot-Dip Galvanizing Industry

(Continued from page 23)

Thus it may be definitely stated that wherever the pickle fumes are bad, the pickling conditions are wrong. The tank capacity may be too small, and there are not enough tanks for the production requirements. Good pickling conditions with a minimum of fumes indicate that there are enough pickling tanks, and that they are large enough for the production needs. Fumes are merely an outward means of letting the plant management know that they do not have large enough tanks, or enough pickling tanks for the requirements of production. Fumes come from pickling baths of high acid strength, and high temperature. Instead of using one tank and getting fumes, the solution of the fume trouble is to use two tanks, lower the acid strength and temperature, and put half of the production through each tank. Pickling will be slower, but the two tanks make up for the time loss, and the same production comes out of the two tanks, without fumes, that formerly came out of one, with fumes.

Hot dip zinc coating washtubs.
Courtesy Enameling and Stamping Co.

"Pickle Sores"

This brings up the cause of "pickle sores," large carbuncle-like sores that sometimes develop on the elbows, or other places where the flesh may become rubbed, and raw. "Pickle sores" are the direct result of poor pickling conditions, and the filthy condition of the pickler's clothes. In some plants there are no wash rooms, and the pickler may go all day with dirty, acid-soaked clothes rubbing against his skin. Finally a break occurs, and infection sets in. in. Vicious sores like carbuncles develop and cause the suffering.

There are two remedies to curing "pickle sores." The first one is for the management to see that there are showers or good wash-room conditions available to the pickler, and second, the pickler's clothing should be checked for cleanliness. There is a practical and common sense limit to both cleanliness and dirt; it may not be necessary to change every day; on the other hand his clothing should not be allowed to become acid-saturated and filthy. If pickle sores should happen to develop, one of the quickest and best remedies to cure them is hot-salt baths.

If on the hand, or an easily

accessible part, the salt solution should be made up in the proportion of 1 cup of ordinary table salt to one quart milk bottle of water. More cups and more water can be added for the amount of solution required. The bathing should be done at as hot a temperature as the patient can stand, and the length of bathing time may be as high as four to five hours to get a vicious infection under control. Constant salt bath applications will stop even the worst infections of acid sores, flux burns, metal burns, or any other cause of serious infection. The elements of cure are patience, time, and prompt treatment of the infection. Constant bathing for long periods of time in the above salt solution will check the most vicious infection. Baths of Epsom Salts should be used for immersion of the whole body.

Heat Exhaustion

A common cause of lost time in working around molten metal and heat is often due to the fact that the men become overheated, and then go out where it is cool, and at the same time they catch cold. In one plant there was a very high lost-time-sickness record. In studying this condition the writer finally located the trouble as being due to the galvanizing furnace being located close to a brick wall with no windows very close by. The day was very hot, and the men were sitting outside resting. The manager saw them, and complained bitterly about the loss of production.

On studying the facts with the men, and actually taking a place with them during operations, it was found that the heat was simply unbearable standing between the furnace and the brick wall. The net result of the study was to break open the wall and put in two very large windows on that side of the furnace. This made the entire shop cooler, and improved working conditions so much that no more time was lost either in being overcome with the heat on the furnace, or by sweating and overheating during their work. This simple rem-

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edy of taking out the wall and putting in windows solved a labor and production problem of many years standing. Loss of production in this case was directly due to physical fatigue from being overheated.

Salt tablets should be available for men working on furnaces to replace the salt lost in sweat.

Hot-Dip Galvanizing Procedure for Health and Safety

1. Never put "green" men in a job where they can easily get hurt; give them a chance to see and learn the process, and then gradually advance them into the work that requires more care and skill.
2. Always see that a tank, or closed article has two openings when it is to be submerged in a molten metal bath; one to let the metal go in; the other to let the gases and steam go out.
3. Do not put cold articles, or wet articles quickly into a bath of molten metal. See that they are preheated with a hot liquid flux, hot muriatic acid dip, or go down through a heavy slag flux on the bath.
4. Never force a closed article down into a bath of molten metal. Be sure there is an inlet and an outlet.
5. Use extreme care in handling acids; use a carboy tilter, or other equipment so that no splashing of the acid into the face can occur.
6. Keep a box of ordinary baking soda handy always in the pickling department to neutralize acid burns.
7. Use extreme care in handling hydrofluoric acid. It burns the nails and flesh, and causes very painful suffering over long periods of time.
8. Use hood whenever nitric acid is used for pickling to carry off the poisonous brown fumes.
9. If pickle fumes are bad that means the pickle capacity is too small for the production; install more tanks until the acid strength and temperature of the bath can be lowered to give a minimum of fumes. Install hoods and ventilators if it is not possible to increase the number of tanks because of lack of floor space.
10. Do not take any chances; han-

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MORTON SALT CO., Chicago, Ill.

dle all acids carefully, and if accidentally burned apply water as quickly as possible and rub with a handful of baking soda.

11. Treat "pickle sores," flux burns, and metal burns with hot concentrated salt water applications. A cupful of salt to a quart of water is the right strength. Apply as hot as possible, and continue application until the infection is completely checked.

12. It is management's responsibility to see to it that picklers have good washroom facilities so that they can keep themselves clean. It is especially important that the pickler's clothes be clean, and that he has adequate acid-protection equipment of good quality, such as rubber gloves, boots, etc. The cheapest and best method of insuring the pickler's health is to modernize the pickling department with plenty of tank capacity, good drainage, and proper acid handling equipment.

13. Keep water away from molten zinc or tin, except when the metal is in such small quantities that the water will freeze it, and no steam can be trapped to cause an explosion. Never put a hose on the surface of the galvanizing bath to cool the metal down; it has been done, but it may be done once too often with extremely disastrous results.

14. See that the ventilation in the galvanizing department is good, and look for spots of confined heat which may weaken the operator, especially in warm weather.

15. Good clean healthy working conditions make satisfied workers, and a good healthy, satisfied worker will more than return the money spent to give him the clean working conditions. More production, a higher quality product, fewer accidents, lower upkeep and repairs, and better loyalty and a higher morale, all are the direct result of good working conditions.

We've Got it!
DOES YOUR GRANULATED INDUSTRIAL SKIN CLEANSER have
THESE THREE SAFETY FACTORS
1. pH Below 10
2. No Free Alkali
3. Low Alkaline Salts (not to exceed 8% calculated as sodium Carbonate) buffered and balanced against pH.
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FIRST SINCE 1926
PAX
TRADE MARK REG US PAT OFF.
PAX
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FASTER
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With no time to be lost, keep war production moving, speed deliveries, save time with Steel-Grip Reinforced Gloves. They handle rough, heavy, jagged materials at breathless pace. Chrome tanned cowhide. Steel ribbon reinforced palm and fingers. Steel thread sewed. Protect against cuts, bruises. Or what's your need? Over 4300 proved Steel-Grip Safeguards may give immediate answer. Used by big industrials since 1910. Write for catalog or state your need today.
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Health at Servel

(Continued from page 7)

cent perfection, but that proper placement be made at the time of employment. Those found with physical impairments, and there are many, should be placed on jobs suitable to their physical and mental ability. No employee should be transferred from his assigned task without the physician's approval.

Physician's Approval

This precaution results in actual health control, for the transfer is not approved until his records are perused, and if same reveals that he has developed certain symptoms that would be detrimental to his health, the transfer is not approved and that is final. For no one is more qualified to determine the physical requirements for the job and the health hazards incident to the work than the plant physician. Shop politics have no place in a well regulated industrial health program. In many of the larger industrial organizations, X-ray and other laboratory facilities are maintained, where considerable diagnostic work is being done.

Chest examinations may be indicated where employes are exposed to certain occupational health hazards, but the presence or absence of agencies inducive to occupational disease will be known to the alert industrial physician long before the offending agency has undermined the health of individuals.

Modern industry has not only kept pace with progressive productive methods, but has been ever alert to disease prevention, for many have, during the past two decades, larger organizations; by actual experience it has been found both practicable and profitable to employe and employer alike to invest in modern medical facilities. With their industrial physicians and nurses, meeting through their medical and nursing organizations, exchanging views on the latest trends in industrial medicine.

Despite popular belief, occupational injuries and disease are now the least important causes of industrial absenteeism. For every injury or case of occupational disease, there are hundreds of prosaic cases of grippe, colds, sore throats and bronchitis, with other respiratory and intestinal indispositions that cost the employe and employer alike millions of dollars annually in time lost.

Today, industry is proud to boast of the fact that their workers are safer at work than in their homes, or on the highway where accidents are increasingly appalling. According to reliable figures, the average annual time lost for each employe in the United States is 9.45 days; of this, 8.85 days are missed from work because of non-occupational illness and injury; 0.59 days because of industrial injuries; and 0.01 days because of occupational disease.

Skin Irritations

Occupational skin diseases, generally known as dermatosis, has been heralded far and wide as industry's public enemy number one, and viewed with increasing alarm by those held responsible for its ever frequent occurrence among

their employes. This apparent frequency was not so mythical to the experienced industrial physician.

For years we have had the usual run of cases, where some one mistook potash for sal-soda; splashes from acids and caustic solutions were frequent occurrences, especially when not wearing proper safety protection, or not having been instructed in the proper method of handling such material, but such injuries came only under the workman's category, burns, and were classified by the attending physician in degrees depending upon their severity.

These men were compensated, if disabled, by their employer for just an old-fashioned burn arising out of and in the course of their regular employment. This was long before the enactment of the occupational disease act and before burns were given such prominence as occupational dermatosis.

Skin Infections

Dermatitis includes any inflammatory condition of the skin due to a multitude of offending agencies, found in abundance, by nature, and within most every large industrial plant. Just why thousands of workers appear to be immune to skin troubles and can work for years on operations without any ill effects, while others seem to be easily affected has baffled physicians for ages.

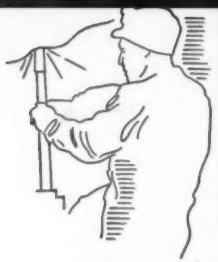
So many factors enter into accident prevention that we shall consider one that is so frequently overlooked by those concerned with safety programs. That is, the emotions that play such an important part in the majority of the accidents is a recognized fact.

The individual whose emotions are so easily aroused, who can be made elated, sad or angry by the twitter of a bird, the defeat of his favorite sport teams, or the joshing remark of a fellow is a poor accident risk. The maladjusted individual who is harboring some grievance, be it real or fancied, relative to the home or plant, or

Chest examinations may be indicated where employees are exposed to certain hazards

is suffering with an emotional complex that prevents an intelligent grasp of all the factors in his job most of the time is likely to be an accident repeater.

The greatest care should be exercised in placing men on the job suitable to their physical and mental stamina.



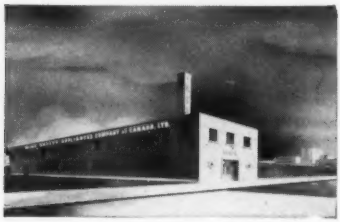
News de... IN THE IE...

"BALANCED LIGHTING"—"Balanced Lighting, a Must in Modern Industry," is the title of a new 12-page manual published by The Fostoria Pressed Steel Corporation, Fostoria, Ohio.

It explains what balanced lighting is and the benefits to expect from this new industrial tool, as well as illustrating the various units possible for industrial applications and many actual installation photos.

This manual is available to all who request it on their letterhead, either from the publication or from The Fostoria Pressed Steel Corporation.

NEW CANADIAN HEADQUARTERS—Greatly enlarging its field of service to Canadian industry, Mine Safety Appliances Company of Canada, Ltd. announces acquisition of a new building at 139 Kendal Avenue,



Toronto, where a broad line of approved safety equipment will be quickly available in meeting the requirements of the Dominion's industrial and mining enterprises.

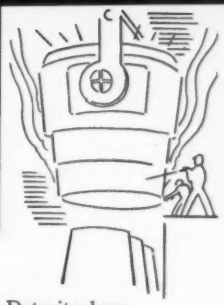
The Canadian-managed and staffed subsidiary of Mine Safety Appliances Company of Pittsburgh will conduct the manufacture and assembly of certain M.S.A. products while stocking all important items made by the parent company.

NEW CATALOG—A new 111-page safety equipment catalog has just been published by the American Optical Company of Southbridge, Massachusetts, manufacturers for more than a hundred years of products to protect and conserve eyesight. Complete protection from head to ankles is provided by the safety items described which include industrial goggles, Calobar lenses, Super Armorplate lenses, welding lenses, welding plates, welding helmets and hand shields, safety clothing, respirators, first-aid kits, etc. Copies of the new catalog will be mailed free of charge upon request.

Two features of the catalog are: (1) An eye protection guide which outlines in chart form industrial classifications, types of eye-hazardous jobs, and the equipment designed to provide proper protection on these jobs; (2) a table which gives suggestions, based on hundreds of proved applications, for the choice of the proper shade of glare-protection glass for a number of industrial jobs involving exposure to glare.

STANDARD FOR CADMIUM—The American Standards Association has just announced publication of a standard for Allowable Concentration of Cadmium.

Because of the increasing importance of toxic materials such as cadmium in connection with the defense program, and greater hazards to work-



ers due to increased production under emergency conditions, the Association has been requested by health authorities to place several toxic materials needed in defense work on its emergency list of projects. This is the first standard of this group to be completed under this emergency procedure. Work is going forward on a number of other toxic materials.

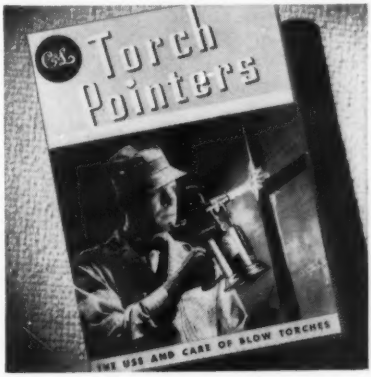
Cadmium is used as a substitute for tin in antifriction metals and solders and in bearing metal. It is widely used in cadmium plating of wire, tools, and other iron and steel articles. It is toxic when absorbed either through the lungs or the gastro-intestinal tract and in some cases causes generalized pneumonia. Some of the occupations in which workers are exposed to cadmium hazards include cadmium-alloy making, cadmium plating, color making, electroplating, lead smelting, paint making, soldering, storage-battery making, textile printing, welding, and zinc smelting and refining.

The new American Defense Emergency Standard describes the properties of cadmium, states the permissible concentration as 1 milligram of cadmium per 10 cubic meters of air, and outlines the sampling procedure and analytical methods to be followed in determining the concentration.

The standard has been printed and copies are now available from the American Standards Association, 29 West 39th Street, New York, N.Y. at 20 cents per copy.

UNIT DUST COLLECTOR—"Stop Dust with the Dustkop" is the title of a new, four page folder issued by Aget-Detroit Mfg. Co., Detroit, showing what the manufacturer claims is one of the most compact, lowest cost self-contained unit dust collectors. Specifications of the unit, cutaway showing construction, together with illustrations indicating how the unit is located to collect dust from surface, tool, pedestal, and bench and cutter grinders are included in the folder which is available on request from the manufacturer or this publication.

BLOW TORCH SAFETY—The issuance of a new booklet, "Torch Pointers" is the specific contribution



of the Clayton and Lambert Mfg. Co., Detroit, Michigan to the growing need for safety instruction. Bound in handy, pocket-size shape, and copiously illustrated, the new booklet points out that the blow torch is one of the safest tools in common use—if properly

handled. It then describes in simple, non-technical language, the component parts of a blow torch, and the principles on which it operates. One entire section is devoted to safety hints.

"Torch Pointers" is available at no charge from Clayton & Lambert Mfg. Co., Detroit, Michigan.

SAFETY ADJUSTABLE HAND TOOL HOLDER—A new device which is made to hold square or octagon shaped tools such as steel hand stamps, chisels, and other similar hand tools has been announced by the M. E. Cunningham Co., 91 E. Carson Street, Pittsburgh, Pennsylvania. The Safety Holder is made so as to hold any size piece from ¼ inch to ¾ inch and other ½ inch ranges

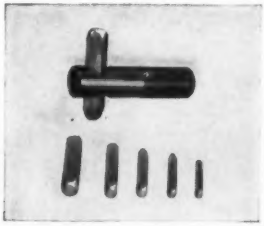


Fig. 1

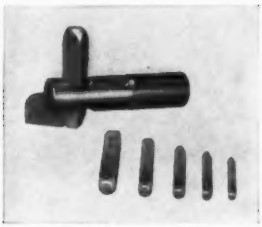


Fig. 2

up to 1¼ inch square. This holder provides a means for holding the different hand tools to eliminate possibility of split or smashed fingers usually caused by foul hammer blows. Also, because the stamp (or other tool) is held securely in the holder there is no chance of it flying and causing injury to nearby workers. It is possible to get a clearer impression with stamps held in this holder because they can be held squarely in place, and where necessary, can be hit harder so as to drive in deeper.

Holder can be furnished with a leveler on front end which protrudes at the proper angle to allow the operator to make several impressions in a straight line. (See illustration #2.)

LIGHT NECESSARY FOR DEFENSE PRODUCTION—Experience has proved that during the dark winter months, even with the best artificial light, there is rarely ever sufficient light at all times in most workrooms. Every precaution must be taken to use all available light, natural as well as artificial, to best advantage.

It is the purpose of Bulletin 533 just issued by the Truscon Laboratories, Detroit, Michigan, entitled, "Better Light Reflection—More Production" to point out this significant fact with graphs and figures. Bulletin also lists several outstanding white coatings for walls and ceilings particularly adaptable to various industries.

Bulletin 533 will be sent without obligation to building maintenance men and owners interested in the problem of "more light for more production."

HOW TO SAVE RUBBER FOR WAR USE—By following a few simple rules during the war time emergency, every industrial plant in America can extend the life of its equipment made of rubber, thereby adding tc the nation's supply of this vital product, according to a statement issued by W. H. Cobb, general manager of the Mechanical Goods Division of the United States Rubber Company.

"Such action will provide a valuable contribution to the war effort," he said, "in addition to effecting operational savings in the plants. Orders

issued by the OPA rationing tire sales have emphasized the need for conserving every possible ounce of rubber for war uses. Every time a plant saves 13¼ ounces, for instance, another gas mask is made possible.

"Certain general rules can be applied to all goods made of rubber. Among the greatest enemies of rubber are oil, grease, and gasoline. These are all very destructive, and rubber products should be kept away from them as completely as possible. The life of conveyor belt, for example, is often cut short by destructive operations such as unnecessary abrasion, misalignment, uncushioned impact, as well as being subjected to leaking oil conditions.

"Also, rubber goods should be stored in a cool, dry atmosphere and kept away from direct sunlight and high temperatures.

Don'ts

"Never place rubber in enclosed generator rooms or near electric motors. If the air around these contains even a minute quantity of ozone, which is created by these machines, it will have an extremely oxidizing effect on hose, belting, packing and other mechanical rubber products, aging them to an abnormal degree.

"The actinic rays of the sun are harmful to all rubber goods (except some types of synthetics). The effect is to deaden the resiliency of the rubber, burning it almost like sun burns human skin and in time resulting in a charred, cracked surface.

"Excessive heat will also harden and crack the rubber and seriously affect the service life of a product manufactured from it. Therefore, avoid steam pipes and boiler rooms.

"Rubber products should never be hung on nails, hooks, across boards, or any objects which might cause them to bend sharply or which might place a strain at any one point. Hose, wire and belting under permanent strain are subject to deformations which may cause them to crack or to break when under pressure. This applies to all grades of products from the highest to the lowest quality.

"It is dangerous practice to 'borrow' or substitute one type of rubber product for purposes other than those for which it is specifically recommended, even though the particular article may seem able to 'take it'. Destructive action or unwarranted strain often takes place which may result in premature failure. In other words, the product should be chosen in consultation with an expert for the specific service for which it is intended."

SAFETY PROMOTION PLAN—

Royal Emblem Co., 41 John St., New York, N.Y. announces its simplified, all-inclusive 5 Point Safety Program. The program includes use of Safety Pledge Buttons and Posters, Safety Award Plan Buttons, Committee Buttons and Departmental Award Plaques. The plan is effective as has been proven in plants over the country. It is especially valuable in these emergency times since it is extremely easy to inaugurate in any plant whether large or small.

NEXT ISSUE

will feature editorial

material devoted to

PLANT PROTECTION

The LITERATURE Library

A listing of data available, without cost, to help you in maintaining a health and safety program.

Eye, Foot, Hand Protection—First Aid

No. 01—CORD-ON-END-SOLES—Pamphlet shows how looped cord-on-end structure makes soles more rugged and safe. Panther-Panco Co.

No. 02—FACE SHIELDS—Circular illustrates and describes 36 types of face shields for dust hazards, welding operations and general hazardous work. Boyer-Campbell Co.

No. 03—SPEED FRAME GOGGLE—Sheet points out goggle with automatic position feature. A simple nod of the head positions the goggles. Mine Safety Appliances Co.

No. 04—EYE PROTECTION—Eight page booklet lists a variety of goggles, lenses, spectacles and goggle accessories. Mine Safety Appliances Co.

No. 05—SKULLGARDS—4 page bulletin lists 7 different head protective products. Actual endorsements detailed. Mine Safety Appliances Co.

No. 06—EYE PROTECTION CATALOG—Outline indicates eye hazardous industries, operations and the type of goggle best suited to handle the problem. American Optical Co.

No. 07—"HOW TO FIT GOGGLES"—4 page bulletin tells how to fit goggles and gives tips for maximum performance. American Optical Co.

No. 08—GLOVES—Information on cowhide welding gloves. Double stitched and fully reinforced. American Optical Co.

No. 09—SAFETY SHOES—"The Whole Story" is the name of a 21 page booklet giving data on safety shoes, their application and use. International Shoe Co.

No. 010—KNEE PADS—Sheet illustrates knee pads to be used for those required to work in a kneeling position. Mine Safety Appliances Co.

No. 011—EYES ARE EXPENSIVE TARGETS—16 page booklet brings the matter of eye protection down to a dollars and cents story. Effective as a management tool. American Optical Co.

No. 012—TOP-SIDER SOLE—Sheet describes squeegee action of safety sole. Will grip any surface. Sperry Top-Sider Co.

No. 013—PACKAGED FOOT SAFETY PLAN—Liberally illustrated book gives full information about a new plan for the distribution of safety shoes. Thom McAn Shoe Co.

No. 014—SAFETY SHOE CATALOG—Is a complete buying guide to a broad selection of safety shoes. Full details on construction and recommendations for specific hazards are included. Lehigh Safety Shoe Co.

No. 015—FIRST AID KIT—4 page bulletin talks about dust proof and weather proof first aid kits. Contents of kits given. Mine Safety Appliances Co.

No. 016—SALT TABLETS—Pamphlet reprints article "Keeping in Condition by Using Salt." Prices and full details given. Morton Salt Co.

No. 017—EAR DEFENDERS—4 page booklet refers to ear defenders that reduce the sound level in noisy locations to about 1/10 of the former level. Points out possibility for greater efficiency. Mine Safety Appliances Co.

Sanitation—Good Housekeeping

No. 100—INDUSTRIAL UNIFORM SERVICE—Pamphlet points out a plan whereby soiled garments are exchanged for freshly laundered ones at no inconvenience and with profitable results to the user. Cleveland Overall Co.

No. 101—SCOPE OF SANITATION—64 page book is a treatise on the many chemicals, products and equipment that provide for a sanitary, healthful plant. Handy guides are included. West Disinfecting Co.

No. 102—GROUP WASHING EQUIPMENT—Catalog No. 4010 details various kinds of washfountains, group showers, includes engineering layouts. Drinking fountains and properly planned washrooms also discussed. Individual bulletins on washroom layouts and pictorial applications also available. Bradley Washfountain Co.

No. 103—INDUSTRIAL DERMATITIS—40 page book includes a scientific report on industrial skin diseases. Products for prevention are outlined. Milburn Co.

No. 104—ATHLETE'S FOOT PREVENTIVE—Circular lists user experience with athlete's foot treatment and offers 60 day trial. Onox Co.

TO GET FREE COPIES of material described on this page write to OCCUPATIONAL HAZARDS, 812 Huron Rd., Cleveland, Ohio, giving the individual number of the pieces desired

No. 105—HAND CLEANER—Pamphlet is a "question and answer" account of how this industrial cleaner is being used effectively by industry. Individual circulars for specialties are available. West Disinfecting Co.

No. 106—FLOOR SCRUBBING MACHINES—4 page bulletin describes a machine that scrubs, polishes, sands, etc., as interchangeable attachments are used. Hild Machine Co.

No. 107—PAPER CUPS—Information regarding the need for paper cups in industry. Free offer made. Lily Tulip Cup Corp.

No. 108—FOOT POWDER—Athlete's Foot powder is furnished in either white stainless form or a slight tracer form. Remains stable in solution. C. B. Dolge Co.

No. 109—SKIN CLEANSER—Generous free trial supply of industrial hand soap is made. Circulars containing specific information available. Sugar Beet Products Co.

No. 110—POWDERED HAND SOAPS—Soap available in various consistencies for specific job. Descriptive literature issued. Lightfoot Schultz Co.

Plant Protection—Maintenance

No. 200—PLANT PROTECTION FOR DEFENSE—Modernized manual of rules, regulations and instructive information to guide watchmen, guards and supervising personnel. Detex Watchclock Corp.

No. 201—SLING CHAINS—4 page catalog sheet details safe working loads, gives dimensions and offers a buying guide for sling chains. McKay Company.

No. 202—INDUSTRIAL WIRE ROPE—96 page catalog contains specific recommendations as to the constructions best suited for various types of cranes and industrial equipment. Broderick & Bascom Co.

No. 203—FLOOR FINISH—Catalog page describes penetrating floor finish that provides an attractive surface as well as preservation of the floor. Truscon Laboratories, Inc.

No. 204—UNIT HEATERS—36 page catalog points out the advantages of unit heaters, gives helpful engineering data including tables, illustrations and piping diagrams. Ilg Electric & Ventilating Co.

No. 205—FLOOR MAINTENANCE—30 page booklet refers to specific material that can be used for properly maintaining all types of floors. Thoroughly detailed and a valuable maintenance manual. West Disinfecting Co.

No. 206—FLOOR PRESERVATION—Literature on floor scrubbing machines indicating safety and maintenance features. Data on products such as waxes, finishes, etc. available. Finnell Co.

No. 207—INDUSTRIAL VITAMIN PLAN—Detailed account of how vitamin pills are now available to industry. User experience listed. Industrial Vitamin Corp.

Protection Against Dusts, Fumes, Gases

No. 300—DUST COLLECTING SYSTEMS—Spiral bound book is both a word and picture presentation of industry's acceptance of skillfully engineered dust control systems. Various accessory equipment detailed. Kirk & Blum Mfg. Co.

No. 301—VENTILATING EQUIPMENT—Catalog page describes ventilating apparatus that is designed to remove various harmful fumes and vapors. Recorded air changes, diagrammatic sketches included. Autovent Fan & Blower Co.

No. 302—INDUSTRIAL DUST CONTROL—20 page book is a discussion of the basic principles applied to the solution of industrial dust problems. Inserted questionnaire can be used for individual cases. W. W. Sly Mfg. Co.

No. 303—PORTABLE VACUUM CLEANING—6 page bulletin points out the places where vacuum cleaners can be effectively used in industrial operations. Free demonstration available. Hild Machine Co.

No. 304—AIRLINE RESPIRATOR—Bulletin CS-6 points out use for an airline respirator with cartridge filter. Auxiliary attachments outlined. Mine Safety Appliances Co.

No. 305—OXYGEN BREATHING APPARATUS—Material descriptive of 2 hour, 1 hour, and ½ hour oxygen breathing apparatus that provides for various periods of respiratory protection. Bulletins are BB-1, BM-2, BC-2. Mine Safety Appliances Co.

No. 306—FUME AND GAS INDICATORS—Catalog sheets and bulletins referring to indicators for benzol, combustible gas, carbon monoxide and hydrogen sulphide. Recorders for oxygen, methane and electrostatic dust and fume sampler also have descriptive data. Mine Safety Appliances Co.

No. 307—PURAIR HELMET—4 page bulletin No. 97 describes a helmet particularly applicable in sand blast operations. W. W. Sly Mfg. Co.

No. 308—DUST COLLECTORS—Bulletin No. 903 describes engineering features available in this dust control equipment. Includes recommendations, specifications and list of users. Pangborn Corp.

No. 309—QUESTIONS AND ANSWERS CONCERNING DUSTS—16 pages of questions and answers are devoted to explaining in non-technical language the problems that continually arise regarding the nature and effects of dust. Mine Safety Appliances Co.

No. 310—SAFETY MARKING STAMPS—Literature describes full line of steel stamps used for marking. Stamps will not mushroom or spall. M. E. Cunningham Co.

No. 311—VACUUM CLEANING—"The Menace of Dust" is a circular that points out uses for heavy duty vacuum cleaning equipment in industry. Adjustments and tools for greater efficiency are discussed. U. S. Hoffman Machinery Corp.

TO GET FREE COPIES of material described on this page write to OCCUPATIONAL HAZARDS, 812 Huron Rd., Cleveland, Ohio, giving the individual number of the pieces desired.

New York Safety Convention in Early March

Hazards in the manufacture of war material that result in costly delays and bottlenecks in production will be high-lighted throughout the four-day annual Safety Convention and Exposition of the Greater New York Safety Council, March 3 to 6, at the Pennsylvania Hotel, N.Y. "Production for Victory," is the timely theme of the gathering.

"Tens of thousands of 'green hands' are now employed in the expanding war effort program and many more thousands are working without sufficient training on machines and with tools with which they are not thoroughly experienced," Howard P. Wall, chairman of the convention's executive committee pointed out in explaining the urgent problem of industrial hazards during the emergency.

"Industrial casualties are just as serious as killed and wounded soldiers, sailors and marines. Manpower on the home defense front is as critical a problem as material shortage, which already has held back production in many instances," he said.

"Remember that it takes ten people working behind the lines to keep one soldier fighting. During the first nine months of 1941, 340,000,000 man-days of production were lost because gainfully employed workers suffered death or injury at work, at home or in traffic."

More than 6,000 industrialists and safety experts are expected to attend the convention and exposition. Unprecedented calls for exhibit space indicate that the exposition will be by far the largest and most informative in the Council's thirteen-year history, Tom A. Burke, executive vice-president of the Greater New York Safety Council said.

Tip for Punch-Press Safety

Power presses, recognized as one of the most hazardous groups of industrial machines, are given careful periodic tests at the General Electric Co.'s Schenectady works. A valuable test is the magnetic test to which punch-press crankshafts are subjected.

The magnetic test consists of magnetizing the shaft, making the direction of the flux longitudinal so that it will intercept any possible cracks at right angles. While magnetized, the shaft is sprayed with kerosene, which has in suspension finely divided particles of magnetic iron oxide. Any cracks or discontinuities in the metal will set up magnetic poles, which while very slight, are strong enough to attract and hold the ironoxide particles, thereby outlining a crack that may ordinarily be invisible to the naked eye.

This test is made each time a shaft is removed from a punch-press for any reason, as a punch-press crankshaft is subjected to tremendous strain in operation. One large company recently tested a group of 43 crankshafts, using this method, and found that 14 of them were cracked and required replacement.

Defense Savings Pay-Roll Allotment Plan

How company heads can help their country, their employees, and themselves

voluntary pay-roll allotment plan

helps workers provide for the future;

helps store up tomorrow's buying power;

helps defend America today.

Business heads are adopting the Voluntary Pay-Roll Allotment Plan as a simple way for every worker to start a *systematic* and *continuous* Defense Bond savings program. It is a sensible step toward reducing the ranks of the post-war needy. It will help spread the financial participation in national defense among all of America's wage-earners. It will materially retard inflation by "storing" part of our pyramiding national income, thus reducing the demand for our diminishing supply of consumer goods.

In emergencies, America doesn't do things "hit-or-miss." We would get there *eventually* if we just left it to everybody's whim to buy Defense Bonds when they thought of it. But we're a nation of businessmen who understand that the way to get a thing done is to *systematize* the operation. That is why so many employers are getting back of this voluntary savings plan.

All you have to do is offer your employees the convenience of having a fixed sum allotted from each pay envelope to the purchase of Defense Bonds. Each employee who chooses to start this savings plan decides the denomination of the bonds to be purchased, and the amount to be allocated from his wages each pay day. You deliver a bond to the employee each time his allotments accumulate to a sufficient amount.

Plenty of help available. The Treasury Department is ready and willing to give you all kinds of help. Local civilian committees in 48 States are set up to work with you just as much as you want them to, and no more. We will supply most of the necessary material.

The first step is to take a closer look. Writing for details in no way obligates you to install the plan. It simply indicates that you'd like to do *something* to help keep your people off relief when defense production sloughs off; *something* to enable *all* wage-earners to participate in financing national defense; *something* to retard inflation and store up tomorrow's buying power. So, write for the free kit of material being used by companies that have installed the Voluntary Defense Savings Pay-Roll Allotment Plan. Address: Treasury Department, Section A, 709 Twelfth Street NW., Washington, D. C.

INFORMATION PLEASE

ABOUT AMERICA'S LARGEST SELLING SAFETY SHOE

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OUTSOLE
ANCHOR
FLANGE
WELT
INSOLE
OUTSOLE
Note that the flange on the HY-TEST steel box toe is not just a "crimp" but a genuine flange . . . wide enough to make it possible to lock the toe in place between the inner and outer sole of shoe.

*The original Hy-Test "Anchor Flange" is a reinforcing rim formed by turning inward the extended bottom edge of the steel box toe. This flange extends completely around the bottom of the toe, and is wide enough to make it possible to anchor the toe securely in place between the inner and outer sole.

Question: **Why is Hy-Test a better safety shoe?**

Answer: Because it offers a "plus" in protection that ordinary safety shoes do not have . . . the original and genuine Hy-Test "Anchor Flange."*

Question: **Why does that make Hy-Test a safer safety shoe?**

Answer: Because it provides a steel box toe that will not shift or tip back when hit, since it is locked into place between the inner and outer sole. 2. Eliminates sharp edges which might cut down through the sole, imprisoning the toes. 3. Provides a reinforced toe to prevent flattening out when hit.

That's why every third pair of safety shoes worn in industry today are Hy-Test.

HY-TEST INTERNATIONAL SHOE CO. SAFETY SHOES

HY-TEST *Safety Shoes*

HY-TEST DIVISION, INTERNATIONAL SHOE CO., SAINT LOUIS, MO.